U.S. Department of Transportation

Intelligent Transportation Systems Standards Fact Sheet

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SAE J2366 (Draft) ITS Data Bus (IDB) Protocol

Overview

The ITS Data Bus (IDB), a serial communication bus, may be the bridge between the development-cycle time difference for automobiles and electronics. It may also meet the need to be able to upgrade automobile electronics during the life of the vehicle. It is intended to provide a common network interface for consumer devices, which may be integrated into vehicles.

To obtain a copy of this draft standard, please contact:

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The long development time required to produce a new automobile and the short development time of today's consumer electronic devices has meant that the electronics in a vehicle might lag the state of the art by several years. With the growing consumer-oriented electronics content in today's vehicles, it is becoming more difficult for the automotive manufacturers to meet consumers' expectations. The result is increasing pressure on the vehicle manufacturers from after-market electronics suppliers, who can update their product lines as fast as the device manufacturers can produce new models.

What is this standard for?

The IDB is a serial communications protocol developed by the SAE ITS Data Bus Committee with the support of the Consumer Electronics Manufacturers Association (CEMA) division of the Electronics Industry Association (EIA). Its primary goal is to provide a means of connecting consumer devices to a common network in a vehicle without requiring the consumer electronics manufacturers to develop interfaces to the different proprietary original equipment manufacturer (OEM) vehicle buses, nor to have to complete automotive-type qualifications on every product which might be of value in an ITS application.

The IDB is an open, non-proprietary serial communications protocol designed to allow a wide variety of consumer devices to share information across a common network in the vehicle. To add system functionality, the IDB can be interfaced to the existing OEM vehicle bus via a gateway (described in SAE J2367), which allows a selective exchange of data between devices on the IDB and devices on the vehicle bus. This allows the IDB to operate independently of all vehicle systems, giving the consumer electronics manufacturers the freedom to integrate IDB interfaces into their popular consumer products without the need for performing a full automotive level network qualification. This independence is important since, in reality, the IDB is a consumer electronics network operating in a vehicle, not simply another automotive network. It is targeted for networking consumer devices that are independent from existing automotive control systems.

Who uses it?

The IDB is intended to be used by vehicle manufacturers to prepare their vehicles for consumer electronics devices, and by the consumer electronics manufacturers to be able to build one version of their products that can be used in any vehicle. Additionally, it may be used by the after market electronics industry to develop a stand-alone version of the IDB to simplify integrated installation of add-on automotive electronics. The ultimate users are the consumers, the vehicle buyers, who will be able to configure their vehicles much the same way as they configure their home theaters and personal computers.

How is it used?

The documents define the complete operation of the IDB. Equipment designers can use these documents to develop software drivers and hardware interfaces for their products so that they will be "IDB-compliant."

Scope

The IDB specifications encompass the definition of the physical medium (unshielded twisted pair), the topology (multidrop bus), media access control mechanisms (token passing), initialization of an IDB network, plug-and-play insertion and removal of devices, message fragmentation and defragmentation, guaranteed delivery of messages, and the application message syntax.

This standard, **SAE J2366, ITS Data Bus (IDB) Protocol**, defines the four layers of the IDB Protocol stack: J2366-1 Physical Layer; J2366-2 Link Layer; J2366-4 Thin Transport Layer; and J2366-7 Application Message Layer. The document set includes J2366-7LX, a lexicon of all the parameters defined for use in the application layer. In addition it identifies a series of documents (still under development), each of which defines the standard message set for a class of devices (e.g., entertainment, telecommunications, vehicle security, navigation, etc.).

Related Documents

To accommodate the broad scope of this effort, the IDB specifications have been divided into several individual documents. At present, the following documents are defined:

SAE J2355—ITS Data Bus– Architecture Reference Model (Information Report)
SAE J2366-1– ITS Data Bus– Protocol Physical Layer (this standard)
SAE J2366-2– ITS Data Bus– Protocol Link Layer (this standard)
SAE J2366-4– ITS Data Bus– Protocol Thin Transport Layer (this standard)
SAE J2366-7– ITS Data Bus– Protocol Application Message Layer (this standard)
SAE J2366-7LX– ITS Data Bus– Application Message Layer Lexicon
SAE J2366-7A– ITS Data Bus– Vehicle Application Messages (Recommended Practice)
SAE J2366-7B– ITS Data Bus– Other Application Messages
SAE J2366-7C– ITS Data Bus– Advanced Traveler Information Systems Application Messages
SAE J2366-7D– ITS Data Bus– Computation/Storage Application Messages
SAE J2366-7E– ITS Data Bus– Entertainment Application Messages
SAE J2366-7F– ITS Data Bus– Communications Application Messages
SAE J2366-7G– ITS Data Bus– User Interface Application Messages
SAE J2366-7H– ITS Data Bus– Public Service Application Messages
SAE J2366-7I– ITS Data Bus– Commerce Application Messages
SAE J2366-7J– ITS Data Bus– Navigation Application Messages
SAE J2366-7K– ITS Data Bus– Security Application Messages
SAE J2366-7L– ITS Data Bus– Emergency/Public Safety Messages
SAE J2366-7M– ITS Data Bus– Diagnostic Application Messages
SAE J2366-7N– ITS Data Bus– Warning Application Messages
SAE J2367– ITS Data Bus Gateway (Recommended Practice)
SAE J2368– ITS Data Bus Conformance Test Procedure (Recommended Practice)
SAE J1760– ITS Data Bus Data Security Services (Recommended Practice)